PERFORMANCE SPECIFICATION SHEET

SWITCHES, SENSITIVE, SPDT, UNSEALED

This specification is approved for use by all Departments and Agencies of the Department of Defense.

The requirements for acquiring the product described herein shall consist of this specification sheet and the issue of the following specification listed in that issue of the Department of Defense Index of Specifications and Standards (DODISS) specified in the solicitation: MIL-PRF-8805

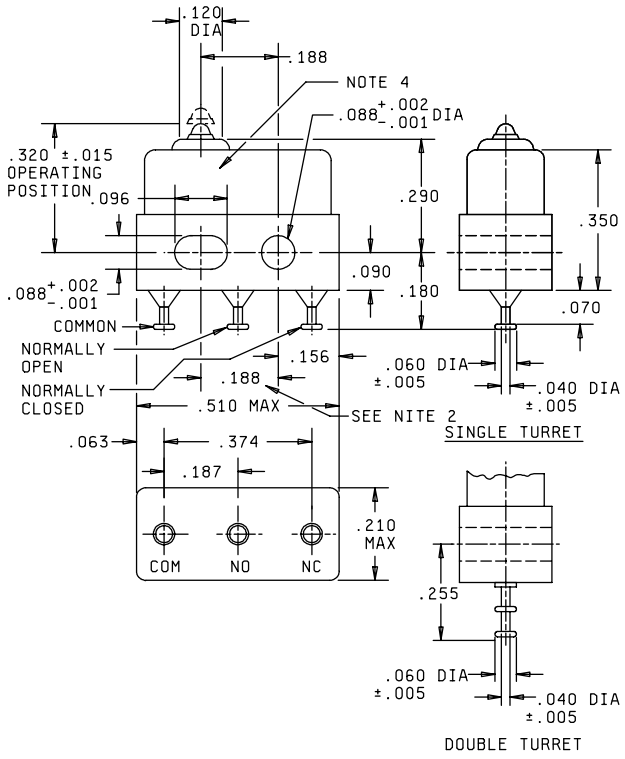
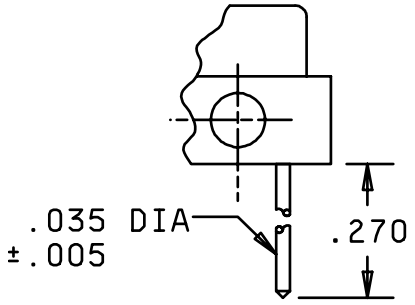
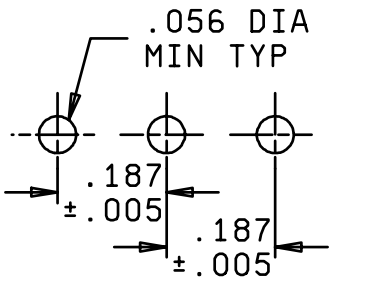


FIGURE 1. Switches, sensitive, SPDT, unsealed.



PRINTED CIRCUIT (PC)



PC BOARD HOLE PATTERN

Inches	mm	Inches	mm	Inches	mm
.002	.0508	.062	1.574	.187	4.750
.003	.0762	.063	1.600	.188	4.775
.005	.127	.070	1.778	.210	5.334
.015	.381	.088	2.235	.270	6.858
.020	.508	.090	2.286	.290	7.366
.030	.762	.096	2.438	.320	8.128
.035	.889	.120	3.048	.350	8.890
.040	1.016	.156	3.962	.374	9.410
.060	1.522	.180	4.572	.510	12.954

NOTES:
1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Unless otherwise specified, tolerances are ±.010 (0.25 mm) for three place decimals.
4. Mounting holes will accept pins or screws of .087 (2.21 mm) maximum diameter on .188 ±.002 (4.78 ±0.05 mm) centers.
5. Double turret terminals shall accept two AN-20 wires.

FIGURE 1. Switches, sensitive, SPDT, unsealed- Continued.

REQUIREMENTS:

Dimensions and configurations: See figure 1.

Enclosure design: 1 (unsealed)

Temperature characteristic:

MS24547-1 through MS24547-12: 1 (- 55°C to + 85°C).

Shock type: M (100 g's).

Vibration grade: 1 (10 Hz to 500 Hz swept sinusoidal 10 g's).

Weight: .003 pound maximum.

Permanency of marking: Applicable to printed circuit terminals.

Operating characteristics:

Actuating force:

MS24547-1, MS24547-2, and MS24547-4 through MS24547-12: 5 ounces maximum.
MS24547-3: 4 ounces maximum.

Releasing force: 1-ounce minimum.

Movement differential:

MS24547-1, MS24547-2, and MS24547-4 through MS24547-9: .005 inch maximum
MS24547-3: .0015 inch maximum.
MS24547-10 through MS24547-12: .003 inch maximum.

Pretravel: .020 inch maximum

Overtravel: .004 inch minimum.

Differential force:

MS24547-3: 2 ounces maximum.

Material:

Plunger: May be glass filled nylon.

Terminal strength:

Single turret (ST): 9 pounds maximum.

Double turret (DT): 3 pounds maximum.

Printed circuit (PC): 1 pound maximum.

Dielectric withstanding voltage:

Sea level: 1,000 V rms.

Altitude (50,000 feet): 400 V rms.

Insulation resistance:

MS24547-3: 500 V dc. 2,000 megohms between mutually insulated contacts and between all contacts and a flat plate with switch installed on the plate.

Contact resistance:

MS24547-3: 0.5 ohm maximum measured at 0.1 ampere, 28 V dc within .0005 inch of operating points.

Mechanical endurance:

MS24547-1, MS24547-2, and MS24547-4 through MS24547-9: 50,000 cycles, at .004 (+.001 -.000) inch overtravel.
MS24547-3: 100,000 cycles, at inch overtravel.
MS24547-10 through MS24547-12: 100,000 cycles, at full overtravel.

Electrical endurance (power circuits): 25,000 cycles.

Contact bounce:

MS24547-1, -2, and –4 through –12: Not applicable.
MS24547-3: 5 milliseconds maximum.

Electrical rating: See tables I, II, and III.

Intermediate current:

MS24547-1, MS24547-2, and MS24547–4 through MS24547–12: Not applicable.
MS24547-3: 100,000 cycles at .004 (+.001, -.000) Inch overtravel.

Low level circuit:

MS24547-1 through MS24547-5, and MS24547-8: Not applicable.
MS24547-10 through MS24547-12: 50,000 cycles.

Logic level circuit:

MS24547-1 through MS24547-5, and MS24547-8: Not applicable.
MS24547-6, MS24547-7, and MS24547-9 through MS24547-12: Applicable.

Qualification inspection: See table IV.

Part or identifying number (PIN): See table V. MS24547 has been cancelled and replaced by MIL-PRF-8805/4. The MS24547 military part identification numbers have been retained.

TABLE I. Electrical ratings, silver contacts:(MS24547-1, -4, and -8).

Load	Sea level		50,000 feet
	28 V dc	115 V ac 60 Hz	28 V dc
	(Amperes)	(Amperes)	(Amperes)
Resistive	7	7	4
Inductive	4	7	2.5
Lamp	2.5	2	2.5

TABLE II. Electrical ratings, gold and gold bifurcated contacts. 1/

Load	Sea level		50,000 feet	
	Power circuit 28 V dc	Logic level 2/ 5 V dc	Power circuit 28 V dc	Logic level 2/ 5 V dc
	(Amperes)	(Amperes)	(Amperes)	(Amperes)
Resistive	1.0	0.01	1.0	0.01
Inductive	0.5	-----	0.5	-----

1/ Shall have gold or gold alloy at the contact interface area.
2/ Applicable to MS24547-6, -7, and –9 through MS24547-12.

TABLE III. Fine silver (gold plated) (MS24547-3).

Load	Sea level	
	28 V dc	115 V ac, 60 Hz
	(Amperes)	(Amperes)
Resistive	5	5
Inductive	3	5
Lamp	2.5	2

TABLE IV. Qualification inspection group submission

Inspection	Sample	Extent of approval
Group I Visual and mechanical 1/ Solderability 2/ Dielectric withstanding voltage Insulation resistance Operating characteristics	All samples	All
Group II Terminal strength 3/ Strength of actuating means Thermal shock Vibration Shock Moisture resistance Marking visibility Dielectric withstanding voltage Operating characteristics	Silver, gold and gold bifurcated (4 samples)	
Group IV Salt spray Marking visibility	MS24547-1, -2, -3, -4, -5, -6, or –7 (2 samples) MS24547-8, -9, -10, -11, or –12 (2 samples)	
Group V Explosion Operating characteristics	MS24547-1 and MS24547-3 (2 samples)	
Group VI Permanency of marking (when applicable) Resistance to soldering heat Contact resistance Contact bounce (applicable to MS24547-3 only) Low temperature operation Mechanical endurance at low temperature Mechanical endurance at high temperature Contact resistance Short circuit 4/ Dielectric withstanding voltage Operating characteristics	MS24547-3 (4 samples) MS24547-1, -4, or –8 (4 samples) MS24547-2, -5, -6, -7, or –9 (4 samples) MS24547-10, -11, or –12 (4 samples)	

See footnotes at end of table.

TABLE IV. Qualification inspection group submission – Continued.

Inspection	Sample	Extent of approval
Group VII Overload cycling Electrical endurance Contact resistance Dielectric withstanding voltage Operating characteristics	MS24547-1, -4, or –8 (18 samples) MS24547-2, -5, -6, -7, or –9 (8 samples) MS24547-3 (12 samples) MS24547-10, -11, or –12 (12 samples)	All
Group IX Intermediate current	MS24547-3 (2 samples)	
Group X Low level circuit Operating characteristics	MS24547-, -7, or –9 (2 samples) MS24547-10, -11, or –12 (2 samples)	
Electronic logic circuit Operating characteristics	MS24547-, -7, or –9 (2 samples) MS24547-10, -11, or –12 (2 samples)	

1/ Two samples for physical dimensions.
2/ Four samples of each applicable terminal type.
3/ Two samples minimum of each terminal style submitted for qualification shall be subjected to group II test.
4/ Short circuit to be conducted using 28 V dc, 60 amperes.

TABLE V. PIN's.

PIN MS24547	Description			Suggested applications 1/				
	Contacts	Rating maximum	Terminal style	Power circuit	Interme-diate current	Logic level	Low level	Contact redun-dancy
-1	Silver	Table I (7 amperes)	ST	X				
-2	Gold	Table II (1 ampere)	ST	X				
-3	Silver (gold plated)	Table III (5 amperes)	ST	X	X			
-4	Silver	Table I (7 amperes)	DT	X				
-5	Gold	Table II (1 ampere)	DT	X				
-6	Gold	Table II (1 ampere)	ST	X		X	X	
-7	Gold	Table II (1 ampere)	DT	X		X	X	
-8	Silver	Table I (7 amperes)	PC	X				
-9	Gold	Table I (1 ampere)	PC	X		X	X	
-10	Gold bifurcated	Table I (1 ampere)	ST	X		X	X	X
-11	Gold bifurcated	Table I (1 ampere)	DT	X		X	X	X
-12	Gold bifurcated	Table I (1 ampere)	PC	X		X	X	X

1/ The following definitions apply:

Power circuits: Those electrical loads where the voltage and current exceed the minimum arcing conditions of the contact material. As a general rule, application loads in excess of 8 volts 0.5 ampere are considered power circuits.

Logic level circuits: Those electrical loads in which the applied voltage is less than the arcing voltage and greater than the melting voltage of the contact material. As a general rule, non-arcing application loads in excess of 0.5 volt are considered logic level circuits.

Low level circuits: Those electrical loads in which the applied voltage is less than the softening voltage of the contact material. As a general rule, application loads less than .08 volt are considered low level circuits.

Custodians:
Army - CR
Navy - EC
Air Force - 11
DLA - CC

Review activities:
Army – AR, AV, MI
Navy – AS, MC, OS, SH
Air force – 19, 99

Preparing activity:
DLA - CC

(Project 5930-1771)